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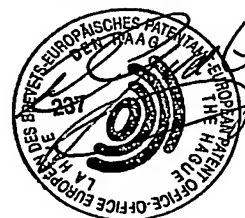
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Base composition for cosmetic products

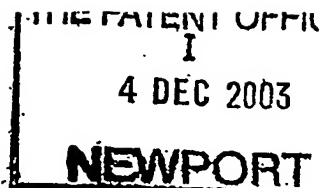
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Base composition for cosmetic products

Field of the invention

5 The invention relates to a base composition for cosmetic products that easily hydrates to form a smooth product.

Background to the invention

10 Anhydrous products that can be hydrated to form a cosmetic composition such as a skin care composition or lotion are known in the art.

US-B-6,221,364 discloses a composition which is essentially
15 free of water which is suitable to be mixed with water with or without additives for forming a cream or a lotion. Advantages of such compositions are disclosed to be avoiding degradation of active ingredients, stability for storage, resistance towards growing rancid of the oil components.

20 US-A-5,607,666 discloses powders that have been obtained from a homogenised and dehydrated oil in water emulsion containing a) a structuring and emulsifying agent, B) at least one fat, c) at least one cosmetically active substance, and d) an aqueous
25 phase.

The products disclosed in these patents are suitable for rehydration but there is a need for improved compositions with respect to the speed of hydration, ease of preparation of the
30 hydratable composition and rheology and homogeneity of the reconstituted product. Often reconstituted products are too fluid to be used as a cream and/or show lumps of particles.

Co-pending application PCT/EP03/04366 relates to compositions suitable for rehydration. Those compositions rely on the combination of fatty acid and an organic base wherein the fatty acid is at least partially neutralised.

Although this document mentions that inorganic basis are unsuitable for providing a composition that may be rehydrated in cold water, we have now found circumstances under which an inorganic base can be used to provide rehydratable compositions that result in a smooth cosmetic composition with consistency from cream to lotion, when mixed with cold water.

Summary of the invention

The invention relates to a cosmetic composition which is essentially water free, said composition comprising an inorganic base, a structuring agent selected from the group comprising glycerine monostearate and glycol monostearate or a combination thereof, and at least 2 wt% neutralised fatty acid. In a further aspect the invention relates to use of the composition to prepare a cosmetic end-use product and to a method to prepare the essentially water free composition.

Detailed description

25

Unless otherwise indicated all percentages are by weight.

One of the advantages of the method according to the invention is that it enables the use of cold water with a temperature from 0 to 35 °C for the preparation of the end-user composition. A cosmetic composition generally comprises from 60 to 90 wt% water and hence this provides a saving in energy cost

as the large water volumes need not be heated before use. Also if the method is carried out on small scale by a consumer, the consumer need not use hot water and electricity for the preparation which may for example not always be available in
5 low income countries. It is however to be noted that the aqueous base can also have a temperature above 35 °C and hence the method according to the invention provides a variety of options.

10 The invention relates to an essentially water free composition which may be hydrated to form an end-user cosmetic composition. The composition according to the invention is preferably in the form of a tablet, powder or amorphous mass, most preferred in the form of a powder.

15

In the context of the invention, essentially water free is defined as preferably comprising less than 10 wt% water, preferably less than 5 wt%, more preferred less than 1 wt% water.

20 The composition comprises an inorganic base. Suitable inorganic bases are e.g. sodium hydroxide and potassium hydroxide. Most preferred the inorganic base is potassium hydroxide. In a preferred embodiment, the amount of inorganic base is from 0.1 to 4 wt%, preferably from 0.5 to 3 wt% on total weight of the
25 essentially water free composition.

The composition comprises a structuring agent. Structuring agents are common ingredients for cosmetic products and are added to contribute to shear thinning properties to aid in
30 spreading of the product, to sensory perception on skin surface

and to contribute to a yield value to aid suspension of other ingredients.

The structuring agent provides structure to the final product after re-hydration of the composition. The structuring agent is
5 selected such that it swells in the presence of cold water and thus imparts firmness to the rehydrated product. The composition and type of structuring agents are preferably selected such that after rehydration a product results which is characterised by an apparent viscosity of from 0.1 to 10000
10 Pa.s at a shear rate of 10 s^{-1} to 100 s^{-1} or a yield stress of from 0.1 to 10.000 Pa, preferably from 1 to 10.000 Pa, more preferred from 10 to 1.000 Pa.

The structuring agent is selected from the group comprising glycerine monostearate and glycol monostearate or a combination
15 thereof. The most preferred structuring agent is glycerine monostearate.

The amount of structuring agent may vary, depending on the type of final composition that is aimed at. In a preferred
20 embodiment, the amount of structuring agent is from 20 to 90 wt% on the weight of the essentially water free composition. More suitable amounts are from 15 to 70 wt%, more preferred from 20 to 60 wt%.

25 The composition also comprises fatty acid. The fatty acid serves to provide anionic charges after being neutralized by the base and co-crystallize with the structuring agent. These mixed crystals were found to swell in cold water.

30 The fatty acid may be added as such or may be part of one of the ingredients e.g. as a by-product or impurity.

In certain preferred embodiments, the hydrocarbon chain length of the fatty acid used is from 14 to 22, preferably 14 to 20, more preferably 16 to 18 carbon atoms.

5 Preferred fatty acids are selected from the group comprising lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid and combinations thereof.

It is important that the structuring agent swells in the
10 presence of cold water.

It was found that the amount of neutralised fatty acid determines the level of swelling. At a too low level of neutralised fatty acid, the swelling is reduced and the rehydrated products easily form lumps or other inhomogeneous
15 parts. If the amount of neutralised fatty acid is too high then the rehydrated product possesses a pH above 10.

In a preferred embodiment the amount of neutralised fatty acid is from 2 to 15 wt%, more preferred from 2.5 to 8 wt%.

20

Most preferred the products comprise neutralised and non-neutralised fatty acid in combination. In this embodiment, the degree of neutralisation of the fatty acid is preferably at least 50% at a total fatty acid concentration of from 5 to 10
25 wt%. The degree of neutralisation is preferably from 5 to 40% at a total fatty acid concentration of from 20 to 80 wt%.

The pH of hydrated samples is preferably below 9, which is desired for skin cream products. The pH obtained may be
30 different, depending on the amount of neutralised fatty acid and the ratio between neutralised and non-neutralised fatty

acid. Therefore, optionally the product comprises an acidulant or base to obtain the desired pH below 9 after rehydration. Preferably products that merely comprise neutralised fatty acid comprise a base to lower the pH of a rehydrated sample to below 5 9. Preferably the amount of acid/base is such that the pH of a rehydrated composition is between 6 and 9.

The swelling properties may furthermore be influenced by the relative amount of the fatty acid and the structuring agent. 10 Therefore it is preferred that the amount of fatty acid is from 5 to 90 wt% based on the total amount of fatty acid and structuring agent.

The composition optionally comprises other ingredients which 15 are generally known for inclusion in cosmetic formulations. Preferred compositions therefore comprise an ingredient selected from the group comprising emulsifying agent, surfactant, other structuring agent than glycerine monostearate and glycol monostearate, emollient oils and waxes, humectants, 20 functional ingredients, preservatives, antioxidants, chelating agents, perfume, colouring agent or a combination thereof.

Emulsifying agents or surfactants may be classified as:

- a) anionic surfactants such as carboxylates, alkylsulfate, 25 ethoxylated alkyl sulfates, sulfosuccinates, isethionates, taurates, phosphated esters and lactylates;
- b) cationic surfactants such as fatty quaternary ammonium salts, pyridinium compounds, ethoxylated amines, imidazolines, amidoamines and phospholipids (
- 30 c) nonionic surfactants such as fatty alcohols (e.g. cetylalcohol), fatty alcoholesters, polyethylene glycol carboxylates, sterols, sterol ethoxylates, sugar

ethoxylates, polyethylene glycol and polypropylene glycol polymers;

d) amphoteric surfactants. These surfactants are less preferred, but a small amount may be present.

5 Any of these or a combination thereof may be present in the claimed composition. The most preferred compositions comprise cetylalcohol.

Examples of other structuring agents are waxes, gelled oils,
10 thickening agents such as gums, polysaccharides, pectin, synthetic polymers e.g. Carbopol, clays.

Emollient oils and waxes may be added to impart a specific function to the end-product composition such as occlusion,
15 sensory properties e.g. skin feel especially after-feel.

Examples of emollient oils and waxes are mineral oils, isopropyl palmitate, isopropyl myristate, propylene glycol diisostearate.

20 To reduce the symptoms of dry skin, the compositions preferably comprise a humectant. Suitable humectants are eg selected from the group comprising polyols such as glycerol, propylene glycol, sorbitol, diglycerol, isoprene glycol; natural moisturizing agents such as lactate, urea, pyrrolidone
25 carboxylate and aminoacids.

Various types of additional active ingredients may be present in compositions of the present invention. Actives are defined as skin benefit agents other than emollients and other than
30 ingredients that merely improve the physical characteristics of the composition. Although not limited to this category, general examples include additional anti-sebum ingredients such

as talcs and silicas, and sunscreens. Further examples include silk protein, fragrances, colouring agents, healthy skin ingredients such as AHA, collagen, amino acids; vitamins such as vitamin A and vitamin E, triple lipids such as lecithin, soy
5 sterol; or combinations thereof.

Conveniently, the essentially water free composition is a simple mechanical mixture, optionally heated, and may conveniently be in the form of a tablet, powder or amorphous
10 mass.

It is preferred that the structuring agent and the neutralised fatty acid are co-crystallised in the essentially water free composition.

Therefore the essentially water free composition is preferably
15 prepared in a process wherein the structuring agent and the neutralised fatty acid are together submitted to a temperature treatment of at least 80 °C. Without wishing to be bound by any theory, it is believed that this heat treatment induces the formation of an isotropic solution which results in co-
20 crystallizing of the structuring agents and the neutralised fatty acid on cooling.

In a further aspect the invention relates to use of an essentially water free composition according to the invention
25 for the preparation of a water containing cosmetic product which is preferably selected from the group comprising creams, shampoos, and lotions.

This water containing composition is also referred to as final product, or end product or product for end-use in the context
30 of this application. These products preferably are spreadable and/or pourable and most preferred have a rheology as exemplified by the above indicated apparent viscosity values.

The final products are preferably prepared by a method wherein the essentially water free composition is mixed with an aqueous base at a temperature of below 80°C, more preferred from 80 to 20 °C.

5

In the context of the invention an aqueous base is an aqueous medium which mainly comprises water but may also comprise other ingredients. The preferred aqueous base is water. Other examples include tea, juices, water with supplemental
10 ingredients such as colouring agent, ingredients with a health benefit, flavour ingredients.

The cosmetic products suitable for the end-user (consumer) typically comprise 60-100%, preferably 60 to 99wt% of aqueous
15 cosmetic base (eg. water, glycerin monostearate and partially neutralized fatty acid), the balance comprising other components necessary to provide the desired form of product e.g. a topical skin care composition.

20 To enable customisation of the resulting cosmetic composition, part of the optional ingredients are preferably added together with aqueous base or after the aqueous base has been added. This applies specifically for benefit agents and unstable ingredients.

25

According to another embodiment of the invention, there is provided an anhydrous composition in the form of a tablet, powder or amorphous mass for use according to the invention. Such an anhydrous composition may be provided separately in a
30 container in which preparation of the cosmetic product occurs. Each unit of anhydrous composition may be individually wrapped.

The mixing with aqueous base may take place in any manner but is preferably manual by stirring or shaking.

The mixture or essentially anhydrous composition can be
5 provided to a consumer for individual preparation of a cream in any suitable way. Preferably a kit of parts is provided for preparing a cosmetic product, said kit comprising a cosmetic container, an essentially anhydrous composition according to the invention and instructions for use of the kit. Said
10 instructions will include guidance on the temperature of the aqueous base and amount of aqueous base to be added for one unit of anhydrous composition, optional further ingredients that may be added and the desired mode of agitation of the mixture.

15

Preferably the cosmetic container is provided with measuring signs to show to the consumer the amount of water that is best added to prepare a final cosmetic product.

20 To accommodate the desire for customisation, preferably the kit of parts additionally comprises a separate packaging unit comprising a skin cream additive, preferably selected from the group comprising perfume, retinol, colorant, oils, herbs, vitamins or a combination thereof. Alternatively such additive
25 may also be part of the essentially anhydrous composition. According to another embodiment said skin cream additive is mixed with an aqueous base which is part of the kit of parts. Said aqueous base optionally comprises (part of) the additives.

30 The essentially water free composition according to the invention may be prepared in any suitable way. It is

advantageous that there is generally no need for excessive heating or complicated process steps to make the composition. In a preferred method, the constituents are mixed, heated to a temperature from 20 to 80 °C, cooled to a temperature below 5 40°C, preferably below 20 °C and preferably formed into a powder or tablet.

The invention is now illustrated by the following non limiting examples.

10 Examples

Example 1

Table 1. Anhydrous base composition

Ingredients	Percentage
Glycerin monostearate	60
Cetyl alcohol	5
Fatty acid	25
Glycol monostearate	8.7
KOH*	1.3
Total	100

*In order to facilitate the neutralization reaction at 80 °C
15 KOH is added as a 50% aqueous solution.

All ingredients of table I were mixed and melted at 80 °C. Subsequently the mixture was cooled to about 20 °C and then made into a powder.

20 The degree of neutralisation was 25% so the total level of neutralised fatty acid was about 6.2 wt%.

90% of water was mixed with 10% of powder using a spatula at room temperature.

A smooth, homogeneous skin cream base resulted.

Example 2.

Table 2

Ingredients	Percentage
Glycerin monostearate	14.0
Cetyl alcohol	3.3
Fatty acid	21.0
Glycol monostearate	5.8
KOH*	1.4
Glycerin	24.8
Mineral oil	24.8
Fragrance	1.7
Titania dioxide	0.8
Dimethicone	2.5
Total	100

5 *In order to facilitate the neutralization reaction at 80 °C
KOH is added as a 50% aqueous solution

All ingredients of table I were mixed and melted at 80 °C.
Subsequently the mixture was cooled to about 20 °C and then
10 made into a powder.

The degree of neutralisation was 33% so the total level of
neutralised fatty acid was about 7 wt%.

A full formulation cream can be prepared by mixing 18% of the
15 composition with 82% water.

Example 3

Table 3

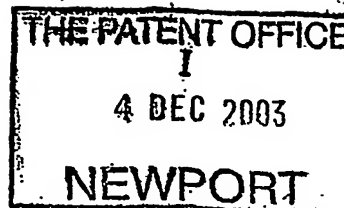
Ingredients	Percentage
Glycerin monostearate	4

Cetyl alcohol	0.6
Fatty acid	2.6
Glycol monostearate	0.8
KOH*	0.22

Glycerin	3
Sunflower seed oil	2
Fragrance	0.2
Silicon oil	0.5
5 Water	86.08

All ingredients of table 3 were mixed and melted at 80 °C. Subsequently the mixture was cooled to about 20 °C and then made into a powder. The degree of neutralization was 40% so the 10 total level of neutralised fatty acid was about 1 wt%.

Water of room temperature was added and simultaneously the silicon oil, sunflower oil, fragrance and glycerin were mixed in. The resulting composition was mixed with a spatula.



Claims

1. A cosmetic composition which is essentially water free, said composition comprising an inorganic base, a structuring agent selected from the group comprising glycerine monostearate and glycol monostearate or a combination thereof, and at least 2 wt% neutralised fatty acid.
2. Cosmetic composition according to claim 1, wherein the amount of neutralised fatty acid is from 2 to 15 wt%, more preferred from 2.5 to 8 wt%.
3. Cosmetic composition according to claim 1 or 2 wherein the structuring agent is glycerine monostearate.
4. Cosmetic composition according to any of claims 1-3 wherein the inorganic base is potassium hydroxide.
5. Cosmetic composition according to any of claims 1-4 wherein the amount of fatty acid is from 5 to 90 wt% based on the total amount of fatty acid and structuring agent.
6. Cosmetic composition according to any of claims 1-5 wherein the hydrocarbon chain length of the fatty acid is from 14 to 20, preferably from 16 to 18 carbon atoms.
7. Cosmetic composition according to any of claims 1-6 wherein the amount of structuring agent is from 15 to 75 wt% on total weight of the essentially water free composition.
8. Cosmetic composition according to any of claims 1-7 wherein the total amount of fatty acid is from 5 to 80 wt% on total

weight of the essentially water free composition.

9. Cosmetic composition according to any of claims 1-8 which further comprises an ingredient selected from the group comprising emulsifying agent, other structuring agent than glycerine monostearate and glycol monostearate, emollient oils and waxes, humectants, functional ingredients, preservatives, antioxidants, chelating agents, perfume, colouring agent or a combination thereof.
10. Use of a composition according to any of claims 1-8 for the preparation of a water containing cosmetic product which is preferably selected from the group comprising creams, shampoos and lotions.
11. Use according to claim 10 wherein in the preparation the essentially water free composition according to any of claims 1-9 is mixed with an aqueous base at a temperature of below 80°C, more preferred from 80 to 20 °C.
12. Method for the preparation of an essentially anhydrous composition according to any of claims 1-9 wherein the constituents are mixed, heated to a temperature from 80 to 120 °C, cooled to a temperature below 40°C and formed into a powder.

Abstract

A cosmetic composition which is essentially water free, said composition comprising an inorganic base, a structuring agent
5 selected from the group comprising glycerine monostearate and glycol monostearate or a combination thereof, and at least 2 wt% neutralised fatty acid, is a suitable base composition for forming a cosmetic product on hydration, such as a cream or lotion.

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